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APPLICATION NO.	FILING DATE	FIRST-NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/801,218	03/06/2001	Edward L. Schwartz	74451.P127D8	3999

7590

06/04/2004

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EXAMINER

SHERALI, ISHRAT I

ART UNIT

PAPER NUMBER

2621

DATE MAILED: 06/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/801,218

Applicant(s)

SCHWARTZ ET AL.

Examiner

Sherali Ishrat

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6, 11.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILE ACTION

Drawings

1. The drawing are objected to under 37 CFR 1.83 (a). The drawing must show every feature of the invention specified in claims. Therefore, the steps of the claimed method must be shown. Drawings does not illustrate any steps of claims 1-6 and 16.
2. The drawings are objected because handwritten characters inside the blocks of various drawing such as 13 are not legible therefore not understood.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-5, 8-11, 12-15, are rejected under 35 USC §102 (e) as being anticipated by Chui et al. (US 6031940).

Regarding claims 1, 8, 12 Chui discloses encoding a first coefficient value in a first frame of a motion sequence (See Chui, figure 4A, Chui shows for video frame [block 364] perform wavelet transform, quantization of coefficients i.e Chui shows encoding a first coefficient value in a first frame of a motion sequence);

subsequently setting a second coefficient in a second frame of the motion sequence and in the same position as the first coefficient to be within a predetermined closeness with the value of the first coefficient (See Chui, col. 7, lines 22-27, "if the difference between the maximum and minimum changes in transform coefficients array from one frame to the next are less than threshold, the current video frame is represented as a repeat of the prior frame" Chui by determining the difference between quantized coefficients of two frames and if they are less than threshold, and representing the current video frame as a repeat of the prior frame [same as previous frame] Chui is setting a second coefficient in a second frame of the motion sequence and in the same position as the first coefficient to be within a predetermined closeness with the value of the first coefficient [same as previous frame]).

Regarding claims 2, 9, 13, Chui discloses predetermined closeness is within a quantization bin size (See Chui, col. 7, lines 22-27, "if the difference between the maximum and minimum changes in transform coefficients array from one frame to the next are less than threshold, the current video frame is represented as a repeat of the prior frame" Since Chui is setting the quantized coefficients of the current frame to be same as previous frame [repeat frame] therefore in Chui's system predetermined closeness is within a quantization bin size).

Regarding claims 3, 10, 14 Chui discloses predetermined closeness is within twice a quantization bin size (See Chui, col. 7, lines 22-27, "if the difference between the maximum and minimum changes in transform coefficients array from one frame to the next are less than threshold, the current video frame is represented as a repeat of the prior frame" Since Chui is setting the quantized coefficients of the current frame to be same as previous frame [repeat frame] therefore in Chui's system predetermined closeness is within a twice quantization bin size).

Regarding claims 4, 11, 15 Chui disclose the second coefficient is set to same value as the first coefficient (See Chui, col. 7, lines 22-27, "if the difference between the maximum and minimum changes in transform coefficients array from one frame to the next are less than threshold, the current video frame is represented as a repeat of the prior frame" Since Chui is setting the quantized coefficients of the current frame to be same as previous frame [repeat frame] therefore in Chui's system the second coefficient is set to same value as the first coefficient).

Regarding claim 5, Chui discloses determining quantization is applied to the first coefficient (See Chui, figure 4A, Chui shows for every video frame [block 364] perform wavelet transform, quantization of coefficients therefore in Chui's system it is determined that quantization is applied to coefficients of first frame [prior frame]),

setting the second coefficient occurs only if the same quantization was applied to the first coefficient (See Chui, col. 7, lines 22-27, Chui shows "if the difference between the maximum and minimum changes in transform coefficients array from one frame to the next are less than threshold, the current video frame is represented as a repeat of

the prior frame" since Chui is setting the second coefficient to be same as previous frame coefficients when the difference between them is less than threshold, if different quantization was applied than difference between coefficients would be larger/greater then coefficients will not be set as previous frame coefficients).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 16-17 and 20-22 are rejected under 35 USC §103 (a) as being unpatentable over Chui et al. (US 6031940).

Regarding claim 16 Chui discloses wavelet transform and a quantizer coupled to the wavelet transform (See Chui, figure 4A, Chui shows for video frame [block 364] perform wavelet transform, quantization of coefficients i.e Chui shows wavelet transform and a quantizer coupled to the wavelet transform);

quantization logic to set a first coefficient in a subsequent frame of the motion sequence and in the same position as the first coefficient to be within a predetermined closeness with the value of the first coefficient (See Chui, col. 7, lines 22-27, "if the difference between the maximum and minimum changes in transform coefficients' array from one frame to the next are less than threshold, the current video frame is

represented as a repeat of the prior frame" Chui by determining the difference [change] between quantized coefficients of two frames and if they are less than threshold, and representing the current video frame as a repeat of the prior frame [same as previous frame] Chui is setting a second coefficient in a second frame of the motion sequence and in the same position as the first coefficient to be within a predetermined closeness with the value of the first coefficient [same as previous frame]).

Chui has not explicitly shown memory to store a threshold value and a memory to store quantized version of coefficient of previous frame of motion sequence.

However Chui in figure 1F in blocks 328 and 334 shows data storage and data quantization procedure, in col. 8, 25-26, memory stores both software and data and data include threshold shown in col. 7, lines 22-27 and quantized version of coefficient of previous frame also shown in col. 7, lines 22-27.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to use storage/memories to store data such as threshold and quantized version of coefficient because such a storage is necessary for implementation of computer/software based system of Chui.

Regarding claim 17, Chui discloses determining quantization is applied to the first coefficient (See Chui, figure 4A, Chui shows for every video frame [block 364] perform wavelet transform, quantization of coefficients therefore in Chui's system it is determined that quantization is applied to coefficients of first frame [prior frame]),

setting the second coefficient occurs only if the same quantization was applied to the first coefficient (See Chui, col. 7, lines 22-27, Chui shows "if the difference between

the maximum and minimum changes in transform coefficients array from one frame to the next are less than threshold, the current video frame is represented as a repeat of the prior frame" since Chui is setting the second coefficient to be same as previous frame coefficients when the difference between them is less than threshold, if different quantization was applied than difference between coefficients would be larger/greater then coefficients will not be set as previous frame coefficients).

Regarding claim 20, Chui discloses predetermined closeness is within a quantization bin size (See Chui, col. 7, lines 22-27, "if the difference between the maximum and minimum changes in transform coefficients array from one frame to the next are less than threshold, the current video frame is represented as a repeat of the prior frame" Since Chui is setting the quantized coefficients of the current frame to be same as previous frame [repeat frame] therefore in Chui's system predetermined closeness is within a quantization bin size).

Regarding claim 21, Chui discloses predetermined closeness is within twice a quantization bin size (See Chui, col. 7, lines 22-27, "if the difference between the maximum and minimum changes in transform coefficients array from one frame to the next are less than threshold, the current video frame is represented as a repeat of the prior frame" Since Chui is setting the quantized coefficients of the current frame to be same as previous frame [repeat frame] therefore in Chui's system predetermined closeness is within a twice quantization bin size).

Regarding claim 22, Chui disclose the second coefficient is set to same value as the first coefficient (See Chui, col. 7, lines 22-27, "if the difference between the

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maximum and minimum changes in transform coefficients array from one frame to the next are less than threshold, the current video frame is represented as a repeat of the prior frame" Since Chui is setting the quantized coefficients of the current frame to be same as previous frame [repeat frame] therefore in Chui's system predetermined closeness is within a twice quantization bin size).

7. Claims 6-7 and 18-19, are rejected under 35 USC §103 (a) as being unpatentable over Chui et al. (US 6031940) in view of Chae et al (Blocking artifact reduction in JPEG-coded images).

Regarding claims 6 and 18, Chui in col. 7, lines 22-27 shows setting the second coefficient to the value near the first coefficient occurs "if the difference between the maximum and minimum changes [difference] in transform coefficients array from one frame to the next are less than threshold, the current video frame is represented as a repeat of the prior frame.

Chui has not explicitly shown determining absolute value of difference between quantized version of the first and second coefficients [coefficient in first and second frame].

In the same field of endeavor Chae et al. shows determining absolute value of difference between quantized version of the first and second coefficients (See Chae, page 895, figure 1, paragraph 2.2, left-hand- column, lines 10-11).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to determining absolute value of difference between quantized version of the first and second coefficients and use in the system of Chui by

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replacing the difference between the maximum and minimum changes [difference] in transform coefficients array from one frame to the next and with absolute value of difference between quantized version of the first and second coefficients [first and second frame] and compare this difference with threshold shown by Chui because such a system provide quantification of coefficients difference due to noise [less than threshold] or due to motion [greater than] on coefficient basis.

Regarding claims 7 and 19, Chui discloses threshold is twice the quantization step size (See Chae, page 895, paragraph 2.2, left-hand- column, lines 18-19, equation 5, shows threshold to threshold is twice the quantization step size).

Communication

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sherali Ishrat whose telephone number is 703-308-9589. The examiner can normally be reached on 8:00 AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Boudreau can be reached on 703-305-4706. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

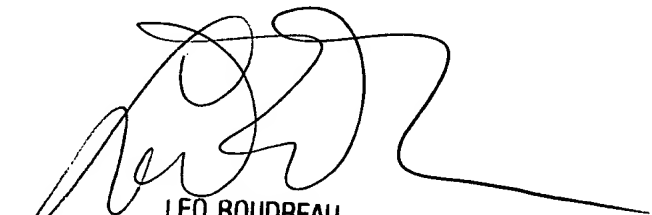


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Patent Examiner

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May 22, 20004



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